

**REMARKS/ARGUMENTS**

The Office Action mailed March 23, 2004, has been received and reviewed. Applicant has amended claims 9-18, 20-23, and 42-45. Claims 46-50 have been added.

Claims 9 through 18, 20 through 23, and 42 through 50 are currently pending in the application. Claims 9 through 18, and 20 through 23 stand rejected. Claims 42 through 45 have been withdrawn. Applicant has amended claims 9-18, 20-23, and 42-45 and respectfully requests reconsideration of the application as amended herein.

**35 U.S.C. § 112 Claim Rejections**

Claims 9 through 18, and 20 through 23 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant has amended independent claim 9 and respectfully requests reconsideration and withdrawal of the 35 U.S.C. § 112 rejection.

**35 U.S.C. § 102(e) Anticipation Rejections**

**Anticipation Rejection Based on U.S. Patent No. 6,229,320 to Haseyama et al.**

Claims 9, 11, 12, 14 through 16, 18, and 20 through 22 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,229,320 to Haseyama et al. (hereinafter "Haseyama"). Applicant respectfully traverses this rejection, as hereinafter set forth.

Applicant asserts that a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.

*Verdegaal Brothers v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in *as complete detail as is contained in the claim*. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). (Emphasis added).

Haseyama describes IC socket embodiments 200, 20-20D for mounting on a test board 32. The IC sockets have contact units 23-23B including a plurality of contact pins 30 for engaging solder bumps 28 on an IC device 25. In the different embodiments of Haseyama, contact units 23-23B may include various features such as elastic member 31, 31A, positioning plate 36 with recesses 38, positioning parts 52A, 53A or guide plates 41 and 42 for retaining

contact pins 30 and positioning of solder bumps 28 (Figs. 7-19). Haseyama further describes that contact pins 30 may have a spiral part 63 for contacting solder bumps 28 (Figs. 21A-21B and Col. 15, lines 31-53). The opposite ends of contact pins 30 pass out of the underside of the socket body 21 and are configured to connect to land parts 33 on test board 32, or in the alternative, to have elastically deformable parts 71, 72, 73 inserted into through holes 70 in test board 32.

Claim 9 recites “a one-piece substrate bounded by a first surface and an opposing, second surface and having at least one conductive trace, *wherein the first surface is configured for mounting a plurality of IC devices thereto.*” (Emphasis added).

The Office Action indicates that Haseyama discloses “semiconductor devices” at Col. 1, lines 18-27, but Applicant respectfully submits that the mere, sole occurrence of the word “devices” within Haseyama does not identically describes the limitation recited in the claim. Applicant respectfully submits that Haseyama, by its embodiments, describes that an individual semiconductor device of a plurality of semiconductor devices is tested on *an IC socket*. Therefore, Applicant respectfully submits that Haseyama does not describe a surface configured for mounting a plurality of IC devices thereto.

Further, it is respectfully submitted that the disclosure of Haseyama is unsuitable for use in an anticipation rejection of independent claim 9 because it does not identically describe each and every element of the claim in as complete detail as is contained therein to anticipate the claimed invention. Rather, the Office Action combines different features of Haseyama to form a structure which, after hypothetical formation, is then used to reject the present claims.

For instance, the Office Action cites bump positioning part 53A, as shown in FIG. 14B, as disclosing a seat portion “sized and configured to at least partially contain the contact portion of the spring contact and support the coils of the coil spring during compression thereof,” as recited by independent claim 9. The Office Action states that “Note that the compressed coil springs are supported by the seat portion (‘bump positioning part’) of the aperture because the contact pins of Haseyama are shown as that in FIGS. 21A through 22B and fit into the openings shown in FIGS. 9, 13B, and 14B.” Office Action, page 5.

However, as may be clearly ascertained in FIG. 14B, bump positioning part 53A is not depicted as being sized and configured to at least partially contain the contact portion of a spring contact and support the coils of the coil spring during compression thereof. Moreover, Applicant respectfully asserts that no express description of any such configuration is found within Haseyama. Rather, Applicant respectfully asserts that such a configuration is a selectively tailored, hypothetical combination of FIG. 14B and FIGS. 21A/21B.

Particularly, FIG. 14B clearly shows that an end of contact pin 30 pierces solder ball 28, in contrast to the claimed limitation. Further, Haseyama expressly describes that the embodiments disclosed in FIGS. 6-20C relate to contact pins 30 which are configured to *pierce* the solder bumps 28, while the contact pins 30 shown in FIGS. 21C-23C are configured to establish an electrical connection with the solder bumps *without* piercing the solder bumps 28. *See* Col. 15, lines 26-30. Therefore, Applicant respectfully asserts that Haseyama describes separate structural embodiments that relate either to contact pins 30 which are directed to piercing a solder bumps or those which establish an electrical connection with the solder bumps without piercing the solder bumps, respectively.

Thus, Applicant respectfully asserts that Haseyama does not describe each and every element of independent claim 9 in as complete detail as is contained therein to anticipate the claimed invention under 35 U.S.C. § 102.

In addition, the Office analogizes positioning holes 43 and 44 of guide plates 41 and 42 to the aperture recited in claim 9. However, independent claim 9 recites, as presently amended, *inter alia*, “retaining portion having a substantially uniform interior size and a first end connected to an opposing end of the seat portion and a second end extending at least partially into the one-piece substrate, wherein the substantially uniform interior size of the retaining portion is smaller than an interior size of the seat portion at the first surface of the one-piece substrate.” The Office Action then references the retaining portion as 46, 70 from FIGS. 16 and 24A-24C.

Applicant respectfully asserts that, despite reference numerals being given, it is unclear precisely what combination of the features described by Haseyama could anticipate independent claim 9 under 35 U.S.C. § 102.

Specifically, the retaining portion has a *first end connected to an opposing end of the seat portion*. As discussed above, the Office Action proposes 53A as a seat portion. As may be seen in FIG. 15, the holes (*apertures*) 43, 44 disclosed by Haseyama are clearly interrupted or separated by elastic member 31/31A. The proposed retaining portion 46 or 70 would appear to be clearly interrupted or separated by elastic member 31/31A as well. Thus, it is unclear how Haseyama describes a first end of a retaining portion of an aperture which is connected to an opposing end of the seat portion.

Accordingly, Applicant respectfully requests withdrawal of the anticipation rejection under 35 U.S.C. § 102 or clarification as to the configuration, position, and orientation of the proposed combination of features described by Haseyama which is purported to anticipate independent claim 9.

Additionally, Applicant respectfully points out that the Office Action acknowledges that Haseyama does not describe each and every element of claim 9 in as complete detail as is contained therein, by stating, “If it is though that Haseyama-1 does not proved a ‘one-piece substrate’ since the items 31A, 41, and 42 are labeled differently, then this may be a difference.” The Office Action further cites *In re Larson*, which concerns rationale supporting an *obviousness* rejection. Accordingly, by the rationale of the Office Action, Haseyama does not describe each and every element of independent claim 9.

Therefore, Applicant respectfully submits that an anticipation rejection of independent claim 9 based upon Haseyama is untenable. Accordingly, Applicant respectfully requests reconsideration and allowance of independent claim 9.

Dependent claim 11 recites, *inter alia*, “a layer of conductive material disposed on at least a portion of an interior wall of the aperture, the layer of conductive material electrically connecting the base portion of the spring contact to the at least one conductive trace.”

As discussed hereinabove, Applicant respectfully asserts that Haseyama does not disclose an aperture which anticipates the aperture claimed in independent claim 9. Particularly, the holes (*apertures*) 43, 44 disclosed by Haseyama are clearly interrupted or separated by elastic member 31/31A. Accordingly, Applicant respectfully asserts that Haseyama does not describe each and every element of dependent claim 11.

In addition, dependent claim 11 is allowable as depending from independent claim 9, which is allowable. Accordingly, Applicant respectfully requests reconsideration and allowance of dependent claim 11.

Dependent claim 12 recites, *inter alia*, “at least one conductive trace is formed on the first surface of the one-piece substrate.” Further, independent claim 9 recites, *inter alia*, “wherein the first surface is configured for mounting a plurality of IC devices thereto.”

Therefore, while the Office Action references conductive traces 48 formed onto lower guide plate 42, it would appear that guide plate 42 does not include a surface configured for mounting a plurality of IC devices thereto.

Accordingly, Applicant respectfully submits that Haseyama does not describe each and every element of dependent claim 12. Further, dependent claim 12 is allowable as depending from independent claim 9, which is allowable. Applicant respectfully requests reconsideration and allowance of dependent claim 12.

Dependent claim 14 recites, *inter alia*, that “the retaining portion of the aperture extends through the one-piece substrate and opens onto the opposing, second surface of the one-piece substrate and the at least one conductive trace is formed on the opposing, second surface of the one-piece substrate.”

As discussed hereinabove, Applicant respectfully submits that Haseyama does not describe an aperture which anticipates the aperture claimed in independent claim 9. Particularly, the holes (*apertures*) 43, 44 disclosed by Haseyama are clearly interrupted or separated by elastic member 31/31A. Likewise, Applicant respectfully submits that Haseyama does not describe each and every element of dependent claim 14.

In addition, dependent claim 14 is allowable as depending from independent claim 9, which is allowable. Accordingly, Applicant respectfully requests reconsideration and allowance of dependent claim 14.

Dependent claim 15, as presently amended, recites, *inter alia*, “a volume of conductive filler material disposed in and filling at least a portion of a longitudinal extent of the aperture within which the base portion extends and electrically contacting the base portion of the spring contact.”

Applicant respectfully submits that neither of elements 46 nor 70 of Haseyama describes each and every element of the claim in as complete detail as is contained therein. Also, dependent claim 15 is allowable as depending from independent claim 9, which is allowable. Applicant respectfully requests reconsideration and allowance of dependent claim 15.

Dependent claims 16, 18, and 20 are each allowable as depending from independent claim 9, which is allowable. Applicant respectfully requests reconsideration and allowance of each of dependent claims 16, 18, and 20.

Dependent claim 21 recites, *inter alia*, that “the seat portion comprises a generally hemispherical recess formed in the first surface of the one-piece substrate, a generally conical recess formed in the first surface of the one-piece substrate, or a generally cylindrical recess formed in the first surface of the one-piece substrate.”

Dependent claim 21 is allowable as reciting a seat portion which is formed in *the first surface of the one-piece substrate*. As noted above, Haseyama does not describe a one-piece substrate meeting the claimed limitation. Accordingly, Applicant respectfully requests reconsideration and allowance of dependent claim 21.

Dependent claim 22 recites, *inter alia*, “the seat portion is further configured to at least partially align the lead element of the IC device relative to the spring contact.”

As noted above, Haseyama does not describe that bump positioning part 53A is sized and configured to at least partially contain the contact portion of a spring contact and support the coils of the coil spring during compression thereof. Similarly, Applicant respectfully submits that Haseyama does not describe a seat portion configured to at least partially align the lead element of the IC device relative to the spring contact, because none is illustrated or described by Haseyama.

Dependent claim 22 is allowable as depending from independent claim 9, which is allowable. Accordingly, Applicant respectfully requests reconsideration and allowance of dependent claim 22.

Anticipation Rejection Based on U.S. Patent Application Publication No. 2002/0060579 to Haseyama et al. in View of Applicant’s Admitted Prior Art

Claims 9, 10, 13, and 15 through 17 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Application Publication No. 2002/0060579 to Haseyama et al. (hereinafter “the Haseyama Application”) in view of Applicant’s admitted prior art. Applicant respectfully traverses this rejection, as hereinafter set forth.

The Haseyama Application describes an electrical connecting device 18 for electrical connection to an IC package. The connecting device 18 includes contactors 10, a guide plate 20, screws 22, screw stoppers 23, and a substrate 24 (Figs. 5A and 5B and ¶ [0037]). Contactors 10 comprise an elongated conductive member 11 provided within a coil-shaped spring 12 (Figs. 3A-4F). External electrodes 31, 61 of an IC package 30, 60 interface with contactors 10 on one side of guide plate 20, and land patterns 25 on substrate 24 interface with contactors 10 on the opposite side of guide plate 20. Wiring 26 provides a connection between land patterns 25 to test equipment 49 (Figs. 5B, 6-8, and 10).

Applicant respectfully asserts that the Haseyama Application fails to describe the claim limitations of claims 9, 11, 12, 14 through 16, 18, and 20 through 22 as required under 35 U.S.C. § 102(e).

Claim 9 recites, “a one-piece substrate bounded by a first surface and an opposing, second surface and having at least one conductive trace, *wherein the first surface is configured for mounting a plurality of IC devices thereto.*” (Emphasis added.)

The Office Action indicates that the Haseyama Application discloses “semiconductor devices” at Col. 1, lines 18-27, (Office Action, page 8) but Applicant respectfully asserts that the mere, sole occurrence of the word “devices” within the Haseyama Application in ¶ [0015] does not disclose the limitation recited in the claim.

Particularly, as illustrated and described in the Haseyama Application, guide plate 20 is illustrated and described as being configured to receive a single IC package 30, 60 (Figs. 5A, 12, and 13A-13C). As such, no surface of guide plate 20 is configured for mounting a plurality of IC devices thereto.

Further, with regard to ¶ [0002] of the Instant Application, cited in the Office Action on page 10 thereof, Applicant respectfully submits the mere disclosure that a MCM includes a

plurality of IC devices does not disclose a first surface configured for mounting a plurality of IC devices thereto.

Accordingly, Applicant respectfully asserts that the Haseyama Application in view of the admitted prior art does not disclose each and every element of independent claim 9 in as complete detail as is contained therein.

Claim 9, as amended, further recites a spring contact having “a generally uncoiled base portion extending generally longitudinally from the contact portion and transversely to the coils of the coil spring.” Coil-shaped springs 12 of the Haseyama Application, on the other hand, are illustrated as having a coiled configuration along their entire length and do not have a base portion as recited in claim 9.

Moreover, claim 9, as presently amended, recites an aperture with a retaining portion having “a substantially uniform size and a first end connected to an opposing end of the seat portion and a second end extending at least partially into the one-piece substrate, wherein the substantially uniform size of the retaining portion is smaller than an interior size of the seat portion at the first surface of the one-piece substrate.” In the Haseyama Application, apertures 21 are illustrated and described as having either a uniform cylindrical shape or a narrowed structure with inwardly tapered upper and lower portions (Figs. 5A and 5B and ¶ [0038]). As such, apertures 21 do not include a retaining portion as recited by independent claim 9, as presently amended.

Therefore, Applicant respectfully requests reconsideration and allowance of independent claim 9.

Applicant respectfully submits that claims 10 and 13 are each allowable as depending from independent claim 9, which is allowable. Accordingly, Applicant respectfully requests reconsideration and allowance of each of claims 10 and 13.

Claim 15, as presently amended, recites “conductive filler material disposed in and filling at least a portion of a longitudinal extent of the aperture within which the base portion extends and electrically contacting the base portion of the spring contact.”

As clearly illustrated in the Haseyama Application, however, land pattern 25 is not disposed in and does not fill any longitudinal extent of aperture 21 within which a base portion



extends. Accordingly, Applicant respectfully submits that claim 15 is allowable.

Applicant also respectfully submits that claims 16 and 17 are each allowable as depending from independent claim 9, through dependent claim 15, both of which are allowable. Accordingly, Applicant respectfully requests reconsideration and allowance of each of claims 16 and 17.

### 35 U.S.C. § 103(a) Obviousness Rejections

#### Obviousness Rejection Based on U.S. Patent No. 6,229,320 to Haseyama et al.

Claims 9, 11, 12, 14 through 16, 18, and 20 through 22 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Haseyama et al. (U.S. Patent No. 6,229,320). Applicant respectfully traverses this rejection, as hereinafter set forth.

M.P.E.P. 706.02(j) sets forth the standard for a Section 103(a) rejection:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, **the prior art reference (or references when combined) must teach or suggest all the claim limitations.** The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). (Emphasis added).

The 35 U.S.C. § 103(a) obviousness rejections of claims 9, 11, 12, 14 through 16, 18, and 20 through 22 are improper because the reference does not teach or suggest all the claim limitations.

The teachings of Haseyama are discussed hereinabove.

Claim 9 recites “a one-piece substrate bounded by a first surface and an opposing, second surface and having at least one conductive trace, wherein the first surface is configured for mounting a plurality of IC devices thereto.”

The Office Action indicates that Haseyama discloses “semiconductor devices” at Col. 1, lines 18-27, but Applicant respectfully submits that the mere, sole occurrence of the word

“devices” within Haseyama does not teach or suggest the limitation recited in the claim. Therefore, Applicant respectfully asserts that Haseyama does not teach or suggest a surface configured for mounting a plurality of IC devices thereto.

Applicant respectfully submits that the Office Action impermissibly combines structural features which are taught and suggested by Haseyama to be specifically configured for separate purposes.

For instance, the Office Action cites bump positioning part 53A as shown in FIG. 14B as disclosing a seat portion “sized and configured to at least partially contain the contact portion of the spring contact and support the coils of the coil spring during compression thereof,” as recited by independent claim 9. The Office Action states that “Note that the compressed coil springs are supported by the seat portion (‘bump positioning part’) of the aperture because the contact pins of Haseyama are shown as that in FIGS. 21A through 22B and fit into the openings shown in FIGS. 9, 13B, and 14B.” Office Action, page 5.

Applicant respectfully submits that no teaching or suggestion of any such configuration is found within Haseyama. Rather, Applicant respectfully submits that such a configuration is a combination selectively tailored, by way of impermissible hindsight, of FIG. 14B and FIGS. 21A/21B.

Particularly, Haseyama expressly teaches that the embodiments shown in FIGS. 6-20C relate to contact pins 30 which are configured to *pierce* the solder bumps 28, while the contact pins 30 shown in FIGS. 21C-23C are configured to establish an electrical connection with the solder bumps *without* piercing the solder bumps 28. *See* Col. 15, lines 26-30. Therefore, Applicant respectfully asserts that Haseyama teaches and suggests separate structural embodiments that relate either to contact pins 30 which are directed to piercing a solder bumps or those which establish an electrical connection with the solder bumps without piercing the solder bumps, respectively.

For instance, one of ordinary skill in the art would use a bump positioning part for piercing a solder bump because such a configuration would laterally stabilize the semiconductor device during the piercing of the solder bumps. However, in the case of contact pins configured to establish an electrical connection with the solder bumps without piercing the solder bumps,

one of ordinary skill in the art lateral forces would be much less. Thus, it appears that Haseyama teaches and suggests suitable, different structural configurations for different electrical contact configurations.

Thus, Applicant respectfully submits that Haseyama does not teach or suggest all the claim limitations of independent claim 9 to establish a *prima facie* case of obviousness under 35 U.S.C. § 103 regarding the claimed invention..

In addition, the Office analogizes positioning holes 43 and 44 of guide plates 41 and 42 to the aperture recited in claim 9. However, independent claim 9 recites, as presently amended, *inter alia*, “a retaining portion having a substantially uniform interior size and a first end connected to an opposing end of the seat portion and a second end extending at least partially into the one-piece substrate, wherein the substantially uniform interior size of the retaining portion is smaller than an interior size of the seat portion at the first surface of the one-piece substrate.” The Office Action then references the retaining portion as 46, 70 from FIGS. 16 and 24A-24C.

Applicant respectfully asserts that, despite reference numerals being given, it is unclear precisely what combination of the features taught and suggested by Haseyama could render independent claim 9 obvious.

Specifically, the retaining portion has a *first end connected to an opposing end of the seat portion*. As discussed above, the Office Action proposes 53A as a seat portion. As may be seen in FIG. 15, the holes (*apertures*) 43, 44 taught by Haseyama are clearly interrupted or separated by elastic member 31/31A. The proposed retaining portion 46 or 70 would appear to be clearly interrupted or separated by elastic member 31/31A as well. Thus, it is unclear how Haseyama teaches or suggests a first end of a retaining portion of an aperture which is connected to an opposing end of the seat portion.

Accordingly, Applicant respectfully requests withdrawal of the obviousness rejection or clarification as to the configuration, position, and orientation of the proposed combination of features taught by Haseyama which is purported to render independent claim 9 obvious.

Additionally, the Office Action states, “If it is though that Haseyama-1 does not prove a ‘one-piece substrate’ since the items 31A, 41, and 42 are labeled differently, then this may be a

difference.” The Office Action further cites *In re Larson*, which concerns rationale supporting an obviousness rejection.

Applicant respectfully submits that the motivation to make the purported combination of features of Haseyama has not been documented. Applicant respectfully submits that the patentability standard for a case of obviousness requires that a reference be considered as a whole. “Portions arguing against or teaching away from the claimed invention must be considered.” *Bausch & Lomb, Inc. v. BarnesHind/Hydrocurve, Inc.*, 230 USPQ 416 (Fed. Cir. 1986).

For instance, Haseyama teaches that, since the positioning plate 36 also positions the contact pins 30, the positioning of the contact pins 30 with respect to the solder bumps 28 is performed with a high precision. Therefore, an electrical connection between the solder bumps 28 and the contact pins 30 can be properly established. Further Haseyama teaches that a large number of contact pins 30 can be easily inserted in the through holes 35 with a relatively small diameter so that the mounting process can be performed efficiently.

Applicant respectfully submits that Haseyama would likely teach and suggest to one of ordinary skill in the art that a separate positioning plate may be useful for positioning a large number of contact pins with high precision with respect to respective solder bumps.

Therefore, Applicant respectfully asserts that the obviousness rejection of independent claim 9 based upon Haseyama is improper. Accordingly, Applicant respectfully requests reconsideration and allowance of independent claim 9.

Dependent claim 11 recites, *inter alia*, “a layer of conductive material disposed on at least a portion of an interior wall of the aperture, the layer of conductive material electrically connecting the base portion of the spring contact to the at least one conductive trace.”

As discussed hereinabove, Applicant respectfully submits that Haseyama does not teach or suggest an aperture as claimed in independent claim 9. Particularly, the holes (*apertures*) 43, 44 taught by Haseyama are clearly interrupted or separated by elastic member 31/31A. Accordingly, Applicant respectfully submits that Haseyama does not teach or suggest all the claim limitations of dependent claim 11 to establish a *prima facie* case of obviousness regarding the claimed invention..

In addition, dependent claim 11 is allowable as depending from independent claim 9, which is allowable. Accordingly, Applicant respectfully requests reconsideration and allowance of dependent claim 11.

Dependent claim 12 recites, *inter alia*, “at least one conductive trace is formed on the first surface of the one-piece substrate.” Further, independent claim 9 recites, *inter alia*, “wherein the first surface is configured for mounting a plurality of IC devices thereto.”

Therefore, while the Office Action references conductive traces 48 formed onto lower guide plate 42, it would appear that guide plate 42 does not include a surface configured for mounting a plurality of IC devices thereto.

Accordingly, Applicant respectfully submits that Haseyama does not teach or suggest all the claim limitations of dependent claim 12. Further, dependent claim 12 is allowable as depending from independent claim 9, which is allowable. Applicant respectfully requests reconsideration and allowance of dependent claim 12.

Dependent claim 14 recites, *inter alia*, that “the retaining portion of the aperture extends through the one-piece substrate and opens onto the opposing, second surface of the one-piece substrate and the at least one conductive trace is formed on the opposing, second surface of the one-piece substrate.”

As discussed hereinabove, Applicant respectfully submits that Haseyama does not teach or suggest an aperture as claimed in independent claim 9. Particularly, the holes (*apertures*) 43, 44 taught by Haseyama are clearly interrupted or separated by elastic member 31/31A. Likewise, Applicant respectfully submits that Haseyama does not teach or suggest all the claim limitations of dependent claim 14 to establish a *prima facie* case of obviousness under 35 U.S.C. § 103 regarding the claimed invention.

In addition, dependent claim 14 is allowable as depending from independent claim 9, which is allowable. Accordingly, Applicant respectfully requests reconsideration and allowance of dependent claim 14.

Dependent claim 15, as presently amended, recites, *inter alia*, “a volume of conductive filler material disposed in and filling at least a portion of a longitudinal extent of the aperture within which the base portion extends and electrically contacting the base portion of the spring

contact.”

Applicant respectfully submits that neither of elements 46 nor 70 of Haseyama teaches or suggests all the claim limitations of dependent claim 15, as presently amended. Also, dependent claim 15 is allowable as depending from independent claim 9, which is allowable.

Applicant respectfully requests reconsideration and allowance of dependent claim 15.

Dependent claims 16, 18, and 20 are each allowable as depending from independent claim 9, which is allowable. Applicant respectfully requests reconsideration and allowance of each of dependent claims 16, 18, and 20.

Dependent claim 21 recites, *inter alia*, that “the seat portion comprises a generally hemispherical recess formed in the first surface of the one-piece substrate, a generally conical recess formed in the first surface of the one-piece substrate, or a generally cylindrical recess formed in the first surface of the one-piece substrate.”

Dependent claim 21 is allowable as reciting a seat portion which is formed in the first surface of the one-piece substrate. As noted above, Haseyama does not teach or suggest a one-piece substrate meeting the claimed limitation. Accordingly, Applicant respectfully requests reconsideration and allowance of dependent claim 21.

Dependent claim 22 recites, *inter alia*, “the seat portion is further configured to at least partially align the lead element of the IC device relative to the spring contact.”

As noted above, Haseyama does not teach or suggest that bump positioning part 53A is sized and configured to at least partially contain the contact portion of a spring contact and support the coils of the coil spring during compression thereof. Similarly, Applicant respectfully submits that Haseyama does not teach or suggest a seat portion configured to at least partially align the lead element of the IC device relative to the spring contact, because none is illustrated or described by Haseyama. Rather, it appears that Haseyama teaches and suggests suitable, different structural configurations regarding different electrical contact configurations.

Also, dependent claim 22 is allowable as depending from independent claim 9, which is allowable. Accordingly, Applicant respectfully requests reconsideration and allowance of dependent claim 22.

Obviousness Rejection Based on U.S. Patent No. 6,229,320 to Haseyama et al. in View of U.S. Patent Application Publication No. 2002/00705025 to Tanaka

Claims 13 and 17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Haseyama et al. (U.S. Patent No. 6,229,320) in view of Tanaka (U.S. Patent Application Publication No. 2002/00705025). Applicant respectfully traverses this rejection, as hereinafter set forth.

The disclosure of Haseyama is discussed above.

Tanka teaches or suggests a semiconductor testing tool, formed with a reduced number of structural elements and allowing a high frequency test, comprising a multi-layer substrate 3 in which internal lead wires 8 are embedded. Further, a layer of silicon rubber 5 is provided at a rear side of the multi-layer substrate 3 to absorb differences in height of the contact pins 6.

Applicant respectfully asserts that one of ordinary skill in the art would not be motivated to combine the teachings of Tanka with the teachings of Haseyama because such a configuration would directly contrast with the structural configurations taught by Haseyama regarding the elastic member 31A. Particularly, FIGS. 17 and 18 illustrate particular advantages to contact pins extending through an elastic member 31A.

Haseyama teaches that the contact pins 30 are inserted through the positioning holes 44 of the lower guide plate 42 so as to be displaceable therein and that the contact pins 30 and the elastic member 31A supporting the contact pins 30 are elastically deformable. Thus, Haseyama teaches when the test board 32 has a rugged surface due to a warp or the like, the contact pins 30 and the elastic member 31A are elastically deformed below the upper guide plate 41. Accordingly, the contact pins 30 can be properly connected to the land parts 33 formed on the test board 32 when the contact pins 30 are fixed to the upper guide plate 41 at the prescribed positions thereof.

Therefore, one of ordinary skill in the art would not make the proposed combination.

Further, dependent claims 13 and 17 are each allowable as depending from independent claim 9, which is allowable.

Accordingly, Applicant respectfully requests reconsideration and allowance of each of dependent claims 13 and 17.

Obviousness Rejection Based on U.S. Patent No. 6,229,320 to Haseyama et al. in View of Japan Patent Publication No. 2000-123935 to Kawaguchi

Claims 23 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Haseyama in view of Japan Patent Publication No. 2000-123935 to Kawaguchi (hereinafter “Kawaguchi”). Applicant respectfully traverses this rejection, as hereinafter set forth.

Dependent claim 23 is allowable as depending from independent claim 9, which is allowable. Applicant respectfully requests reconsideration and allowance of dependent claim 23.

Obviousness Rejection Based on U.S. Patent Application Publication No. 2002/0060579 to Haseyama et al. in View of Applicant’s Admitted Prior Art

Claims 9, 10, 13, and 15 through 17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Haseyama et al. (U.S. Patent Application Publication No. 2002/0060579) in view of Applicant’s admitted prior art. Applicant respectfully traverses this rejection, as hereinafter set forth.

Claim 9 recites, “a one-piece substrate bounded by a first surface and an opposing, second surface and having at least one conductive trace, *wherein the first surface is configured for mounting a plurality of IC devices thereto.*” (Emphasis added.)

The Office Action indicates that the Haseyama Application discloses “semiconductor devices” at Col. 1, lines 18-27, (Office Action, page 8) but Applicant respectfully submits that the mere, sole occurrence of the word “devices” within the Haseyama Application in ¶ [0015] does not teach or suggest the limitation recited in the claim.

Particularly, as illustrated and described in the Haseyama Application, guide plate 20 is illustrated and described as being configured to receive a single IC package 30, 60 (Figs. 5A, 12, and 13A-13C). As such, no surface of guide plate 20 is configured for mounting a plurality of IC devices thereto.

Further, with regard to ¶ [0002] of the Instant Application, cited in the Office Action on page 10 thereof, Applicant respectfully submits the mere disclosure that a MCM includes a



plurality of IC devices does not disclose a first surface configured for mounting a plurality of IC devices thereto.

Accordingly, Applicant respectfully submits that the Haseyama Application in view of the admitted prior art does not teach or suggest the claim limitations of independent claim 9 to establish a *prima facie* case of obviousness under 35 U.S.C. § 103 regarding the claimed invention.

Claim 9, as presently amended, further recites a spring contact having “a generally uncoiled base portion extending generally longitudinally from the contact portion and transversely to the coils of the coil spring.” Coil-shaped springs 12 of the Haseyama Application, on the other hand, are illustrated as having a coiled configuration along their entire length and do not have a base portion as recited in claim 9.

Moreover, claim 9, as presently amended, recites an aperture with a retaining portion having “a substantially uniform size and a first end connected to an opposing end of the seat portion and a second end extending at least partially into the one-piece substrate, wherein the substantially uniform size of the retaining portion is smaller than an interior size of the seat portion at the first surface of the one-piece substrate.” In the Haseyama Application, apertures 21 are illustrated and described as having either a uniform cylindrical shape or a narrowed structure with inwardly tapered upper and lower portions (Figs. 5A and 5B and ¶ [0038]). As such, apertures 21 do not include a retaining portion as recited by independent claim 9, as presently amended.

Accordingly, Applicant respectfully requests reconsideration and allowance of independent claim 9.

Applicant respectfully submits that claims 10 and 13 are each allowable as depending from independent claim 9, which is allowable. Accordingly, Applicant respectfully requests reconsideration and allowance of each of claims 10 and 13.

Claim 15, as presently amended, recites “conductive filler material disposed in and filling at least a portion of a longitudinal extent of the aperture within which the base portion extends and electrically contacting the base portion of the spring contact.”

Applicant respectfully submits that the Haseyama Application does not suggest the claim

limitation of dependent claim 15 because land pattern 25 is not disposed in and does not fill any longitudinal extent of aperture 21 within which a base portion extends. Accordingly, Applicant respectfully submits that claim 15 is allowable.

Applicant also respectfully submits that claims 16 and 17 are each allowable as depending from independent claim 9, through dependent claim 15, both of which are allowable. Accordingly, Applicant respectfully requests reconsideration and allowance of each of claims 16 and 17.

**Informality Objection to Claim 9**

Claim 9 has been amended to overcome the Examiner's informality objection.

**ENTRY OF AMENDMENTS**

New claims 46-50 and the amendments to claims 9-18, 20-23, and 42-45 above should be entered by the Examiner because both the new claims and the amendments are supported by the as-filed specification and drawings.

**CONCLUSION**

Claims 9-18, 20-23, and 42-50 are believed to be in condition for allowance, and an early notice thereof is respectfully solicited. Should the Examiner determine that additional issues remain which might be resolved by a telephone conference, he is respectfully invited to contact Applicant's undersigned attorney.

Respectfully submitted,



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